



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: SPEY Mk511 BYPASS RATIO: 0.6  
 UNIQUE ID NUMBER: 1RR016 PRESSURE RATIO ( $\pi_{00}$ ): 18.7  
 COMBUSTOR: Transply IIH  
 ENGINE TYPE: MTF RATED THRUST ( $F_{00}$ ) (kN): 50.7

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	19.5	146.9	80.3	25.7
AS % OF ORIGINAL LIMIT	99.6	124.5	103.7	90.1
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			129.6	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			140.9	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			146.9	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			162.8	

### DATA STATUS

- PRE-REGULATION  
 x CERTIFICATION  
 - REVISED (SEE REMARKS)

### TEST ENGINE STATUS

- NEWLY MANUFACTURED ENGINES  
 x DEDICATED ENGINES TO PRODUCTION STANDARD  
 - OTHER (SEE REMARKS)

### EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE  
 (ANNEX 16 VOLUME II)

### CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)  
 x OUT OF PRODUCTION (DATE: - )  
 - OUT OF SERVICE (DATE: - )

### MEASURED DATA

MODE	POWER SETTING (%F <sub>00</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NO <sub>x</sub>	
TAKE-OFF	100	0.7	0.891	0.09	0.12	22.70	21.9
CLIMB OUT	85	2.2	0.726	0.12	0.63	17.30	20.8
APPROACH	30	4.0	0.278	0.18	2.65	7.20	12.9
IDLE	7	26.0	0.127	3.69	31.77	3.60	6.9
LTO TOTAL FUEL (kg) or EMISSIONS (g)			398	758	6536	3701	-
NUMBER OF ENGINES				2	2	2	2
NUMBER OF TESTS				3	3	3	3
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				15.0	128.9	73.0	21.9
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				1.9	8.3	4.8	3.1
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				12.9-16.8	119.5-135.3	67.8-77.2	19.9-25.4

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT - POWER SETTINGS  
 STAGE BLEED 0 (% CORE FLOW) AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	99-102
TEMPERATURE (K)	285-289
ABS HUMIDITY (kg/kg)	0.006-0.009

### FUEL

SPEC	DERD 2494
H/C	1.91
AROM (%)	20

MANUFACTURER: Rolls-Royce plc  
 TEST ORGANIZATION: Rolls-Royce Ltd  
 TEST LOCATION: Derby  
 TEST DATES: 01/09/1984-01/08/1985

### REMARKS

1. Data from RR report CRR10149.
2. Transply IIH combustors.

Compliance with Fuel Venting requirements: -

('x' if complies, 'PR' if pre-regulation, '-' if information is not available)